Air Quality Permitting
Statement of Basis

June 15, 2005

Permit to Construct No. P-050011

Masco, Inc., Portable

Facility ID No. 777-00051

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FINAL

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Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EI	emissions inventory
EPA	U.S. Environmental Protection Agency
°F	degrees Fahrenheit
ft	feet
HAPs	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MMBtu/hr	million British thermal units per hour
MSDS	Material Safety Data Sheet(s)
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
ppm	parts per million
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
RAP	recycled asphalt pavement
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM80	synthetic minor facility with a potential to emit greater than or equal to 80% of the major source threshold level(s)
SO_2	sulfur dioxide
TAPs	toxic air pollutants
T/hr	tons per hour
T/yr	tons per any consecutive 12-month period
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

This facility is a portable hot-mix asphalt facility that manufacturer's hot-mix asphalt by heating and drying aggregate (including recycled asphalt pavement (RAP)) and then mixing these materials with asphalt cements. The facility's aggregate dryer is a parallel flow drum dryer. The allowable fuel types that may be supplied to the dryer are natural gas, ASTM Grade 2 fuel oil, or residual fuel oil (RFO). RFO has physical characteristic similar to used oil; therefore, it is being regulated as used oil. For the purposes of this permit, RFO and used oil mean the same. Electricity requirements are provided by the local electric utility company exclusively. Particulate matter emissions are controlled by a wet scrubber. All other air pollutant emissions are uncontrolled.

3. FACILITY / AREA CLASSIFICATION

This facility is classified as a synthetic minor facility because enforceable operational limits limit the facility's potential to emit to less than Tier I operating permit major source thresholds. The AIRS facility classification is "SM80" because the facility's potential to emit is greater than or equal to 80% of the major source threshold level(s). The SIC code defining this facility is 2951 (Asphalt Paving Mixtures and Blocks).

The facility is portable, and can therefore locate anywhere within Idaho. However, if the facility locates to a PM_{10} nonattainment area or to a proposed PM_{10} nonattainment area, additional operational restrictions apply so that the emissions do not significantly contribute to the already degraded air quality.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at Masco. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

Masco, Inc. (Masco) has submitted a PTC application to modify its existing permitted hot-mix asphalt facility. Masco proposes the following actions: (1) remove the ability to operate a generator because line power is now available; (2) increase the allowable PM_{10} emissions rate limit from the dryer from nine lb/hr to 11 lb/hr; and (3) allow for the addition of two new fuel types for the dryer: natural gas and RFO or used oil.

The increases in emissions from this proposed modification are 34 T/yr of sulfur dioxide (SO_2) and 1.2 T/yr of total hazardous air pollutants (HAPs). The emissions increases are associated with the combustion of used oil (the additional fuel) in the dryer. Annual hot-mix asphalt production is currently limited in the facility's existing permit. Masco has not requested to increase this amount.

4.1 Application Chronology

March 30, 2005	Masco submitted a PTC application to modify its facility
April 27, 2005	DEQ determined the application complete
June 15, 2005	Notification of PTC approval issued

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action:

5.1 Equipment Listing

Masco's portable hot-mix asphalt facility consists of the following sources:

Hot-mix Asphalt Plant	
Manufacturer:	AESCO
Model No.:	GB-350
Type:	Parallel drum mix
Maximum hourly hot-mix asphalt production capacity (T/hr):	350
Allowable daily hot-mix asphalt production capacity (T/day):	6,000
Maximum rated heat input requirements (MMBtu/hr):	75.6
Allowable fuel types:	Natural gas, ASTM Grade 2 fuel oil, and RFO or used oil
RAP Circuit	
Lump breaker	no information available
Feed conveyor to dryer	no information available
Dryer Stack Parameters	
Minimum stack height (ft):	55
Stack diameter (ft):	4
Stack gas flowrate (acfm):	45,000
Stack gas temperature (°F):	140 (approximate)
Air Pollution Control Equipment	
Wet scrubber	no information available

Facility Electrical Requirements

To be provided by the local electrical utility company exclusively.

5.2 Emissions Inventory

Masco provided an emissions inventory (EI) for criteria air pollutants, toxic air pollutants, and hazardous air pollutants. DEQ has reviewed the EI and has determined that the EI accurately reflects emissions from this facility. A copy of the detailed EI is presented as Appendix B.

Table 5.1 summarizes the facility's potential to emit criteria air pollutants and total HAPs. The potential to emit is based on the worst-case fuel burned in the dryer, RFO or used oil, and a hot-mix asphalt production rate of 220 T/hr. Both of these conditions are specifically limited in the permit as enforceable permit conditions.

Table 5.1 POTENTIAL TO EMIT SUMMARY

Masco, Inc., Portable						
Source Description	VOC	PM_{10}	SO_2	NO_X	CO	Total HAPs
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Dryer emissions	22.9	32.2	41.5	39.4	93.1	7.42

5.3 Modeling

Initial ambient air quality modeling predicted that some toxic air pollutants (TAP) could not demonstrate compliance with their respective ambient increments using the current stack parameters. Through iterative modeling, Masco determined by raising the dryer's stack height from 34 feet to 55 feet compliance with all identified TAP increments could be demonstrated. DEQ's modeling staff has reviewed Masco's modeling analysis and concurs with Masco's determination. In order to assure compliance with all identified TAP increments, a minimum stack height of 55 feet is required as an enforceable permit condition.

With respect to criteria air pollutant ambient impacts, Masco has demonstrated to the satisfaction of DEQ that criteria air pollutant emissions will not cause or contribute to a violation of any applicable ambient air quality standard. Masco's modeling analysis and DEQ modeling memorandum are presented as Appendix C of this statement of basis.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

The modification to Masco's portable hot-mix asphalt facility does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a modified PTC is required.

IDAPA 58.01.01.203 ..... Permit Requirements for New and Modified Stationary Sources

The applicant has shown to the satisfaction of DEQ that its portable hot-mix asphalt facility will comply with all applicable emissions standards, ambient air quality standards, and TAP increments.

IDAPA 58.01.01.205 ..... Permit Requirements for New Major Facilities or Major Modifications in Attainment or Unclassifiable Areas

This facility is not an existing major facility. The proposed modification is not major in and of itself. Therefore, Section 205 requirements do not apply.

IDAPA 58.01.01.210 ..... Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application.

IDAPA 58.01.01.224 ..... Permit to Construct Application Fee

Masco satisfied the PTC application fee requirement by submitting $1,000.00 at the time the original application was submitted, March 30, 2005.

IDAPA 58.01.01.225 ..... Permit to Construct Processing Fee

The increase in emissions from this modification is between 10 and 100 T/yr; therefore, the associated processing fee is $5,000.00. In accordance with IDAPA 58.01.01.226.02, no permit to construct can be issued by DEQ until DEQ receives the PTC processing fee. The processing fee was paid June 17, 2005.

40 CFR 60 ..... New Source Performance Standards

Hot-mix asphalt facilities constructed, modified, or reconstructed after July 25, 1977 are subject to the standards of performance contained in 40 CFR 60, Subpart I (Standards of Performance for Hot Mix Asphalt Facilities). This facility was constructed in 1988; hence, the facility is defined as an affected facility and is subject to the standards of performance contained in 40 CFR 60, Subpart I.

40 CFR 61 ..... National Emissions Standards for Hazardous Air Pollutants

This facility is not subject to any NESHAP requirements pursuant to 40 CFR 61. The proposed modification does not trigger any NESHAP requirements.

40 CFR 63 ..... National Emissions Standards for Hazardous Air Pollutants for Source Categories

This facility is not subject to any NESHAP requirements pursuant to 40 CFR 63. The proposed modification does not trigger any NESHAP requirements.

5.5 *Fee Review*

Masco submitted the required application fee of $1,000.00 on March 30, 2005, when the original PTC application was submitted (IDAPA 58.01.01.224). The increase in emissions from this proposed modification is approximately 35.2 T/yr. An increase in emissions greater than 10 T/yr, but less than 100 T/yr is subject to a PTC processing fee of $5,000.00 (IDAPA 58.01.01.225). This fee is due before the modified PTC can be issued (IDAPA 58.01.01.226.02). The processing fee was paid June 17, 2005.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0	0.0
SO_2	34.0	0	34.0
CO	0.0	0	0.0
PM_{10}	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	1.2	0	1.2
Total:	**35.2**	**0**	**35.2**
Fee Due	**$ 5,000.00**		

6. PERMIT CONDITIONS

This section lists only those permit conditions that have been modified or deleted as a result of this permit modification. All other permit conditions remain unchanged or have been updated to reflect current permitting language. Permit condition related to the modified permit are identified as Modified Permit Conditions. Permit conditions related to the existing permit are identified as Existing Permit Conditions. Where appropriate, existing permit conditions have be cut and pasted from the existing permit.

6.1 Existing Permit Condition 2.3 Particulate matter (PM), from the HMA dryer stack shall not exceed 0.04 grains per day standard cubic foot (gr/dscf), nor shall particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}) emissions from the HMA dryer stack exceed the emission rate limit listed below.

Table. 2.1 EMISSION LIMTS

Masco, Inc. - Boise, Idaho	
Source	**PM_{10}**
Description	**lb/hr**
Asphalt Dryer Stack Outlet	9.0

Modified Permit Conditions 2.3 and 2.4 separate Existing Permit Condition 2.3 into two permit conditions for clarity purposes. For example, the PM_{10} emissions limit is imposed for NAAQS compliance. The grain loading standard is imposed for NSPS compliance. Separating the two limits makes each limit distinct. Modified Permit Conditions 2.3 and 2.4 are presented below for reference. In addition, CO emissions are limited to 93.1 tons per any consecutive 12-month period. This limit establishes the facility's potential to emit and its classification as a synthetic minor facility.

2.3 Dryer PM_{10} and CO Emissions Limits

- PM_{10} emissions from the dryer stack shall not exceed 11 lb/hr, averaged over any 24-hour period.
- CO emission from the dryer stack shall not exceed 93.1 tons per any consecutive 12-month period.

2.4 Dryer PM Emissions Limits

In accordance with 40 CFR Part 60.92(a)(1), PM emissions from the dryer stack, or any other stack, vent, or other functionally equivalent opening associated with the dryer, shall not exceed 0.04 grains per dry standard cubic foot (gr/dscf) or exhibit 20% opacity or greater.

6.2 Existing Permit Condition 2.4 contained the NSPS grain loading limit for fugitive emissions sources (systems for screening, handling, storing, and weighing hot aggregate). The appropriate NSPS limit for these sources is the NSPS opacity limit of not more than 20% opacity.

2.4 Other Particulate Matter Emission Limits

Gases from systems for screening, handling, storing, and weighing hot aggregate that emanate from a stack, vent, or other functionally equivalent opening shall not contain PM emissions in excess of 0.04 gr/dscf.

Modified Permit Condition 2.5 corrected existing permit condition 2.4 by limiting opacity, not grain loading, from the fugitive emissions sources listed above.

2.5 Other PM Emissions Limits

Gases from systems for screening, handling, storing, and weighing hot aggregate, including those affected facilities associated with the RAP process line, shall not exhibit 20% opacity or greater as required by 40 CFR Part 60.92(a)(2). Opacity shall be determined by procedures contained in IDAPA 58.01.01.625.04.

6.3 Existing Permit Conditions 2.8, 2.18, 2.21, 2.26, and 2.28 all related to electrical generator operations and all have been deleted because the facility no longer includes a generator. Electrical power is supplied by the local electric utility company.

Modified Permit Condition 2.10 requires that electricity supplied to this hot-mix asphalt facility be provided by the local electric utility company exclusively. This requirement assures that no electrical generator is used.

2.10 Electrical Power Supply

Electricity supplied to this hot-mix asphalt facility shall be provided by the local electric utility company, exclusively. A fossil-fuel fired electrical generator shall not be used at any time.

6.4 Existing Permit Condition 2.7 limits the fuel supplied to the dryer to No. 2 fuel oil only.

2.7 Dryer Burner Fuel Limits

The burner fuel shall be No. 2 fuel oil only.

Modified Permit Condition 2.11 allows for two additional fuel types to be supplied to the dryer: natural gas and residual fuel oil.

2.11 Allowable Dryer Fuel Types

The fuel supplied to the dryer shall be natural gas, ASTM Grade 2 fuel oil, or used oil. Any used oil supplied to the dryer shall meet the specifications in 40 CFR 279.11, with the exception of total halogens, as provided in Permit Condition 2.12. Total halogens are limited to 1,000 ppm.

6.5 Modified Permit Condition 2.8 requires that the facility conduct a performance test to demonstrate compliance with Permit Conditions 2.3, 2.4, and 2.5 (PM_{10} emissions rate limit only, NSPS grain loading limit, and NSPS opacity limit, respectively) at least once every five years to determine the facility's compliance status with regard to applicable air quality requirements.

6.6 Modified Permit Condition 2.9 requires that the dryer stack be a minimum height of 55 feet to comply with all TAP ambient increments.

6.7 Modified Permit Condition 2.10 contains the specifications the RFO must meet in order to be burned in the dryer.

2.12 Used Oil Specifications

In accordance with 40 CFR 279.11, with the exception of total halogens which are limited to 1,000 ppm, any used oil burned for energy recovery shall not exceed any of the allowable levels of the constituents and property listed in Table 2.1.

Table 2.1 USED OIL SPECIFICATIONS[1]

Constituent/property	Allowable level
Arsenic	5 ppm[2] maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash point	100 deg. F minimum
Total halogens	1,000 ppm maximum

[1] The specification does not apply to mixtures of used oil and hazardous waste that continue to be regulated as hazardous waste (see 40 CFR 279.10(b)).

[2] parts per million

6.8 Modified Permit Condition 2.14 limits hot-mix asphalt production to a maximum of 6,000 T/day. This limit is imposed to assure compliance with the 24-hour NAAQS for PM_{10}. This limit is based on burning the worst-case fuel, RFO or used oil, but applies regardless of the fuel type burned.

6.9 Modified Permit Condition 2.16 requires that the facility operate the wet scrubber whenever it is producing hot-mix asphalt. A requirement to operate the wet scrubber was not a condition of the existing permit.

6.10 Existing Permit Conditions 2.22, 2.23, and 2.29 contain operational restrictions when collocated with other portable sources (other hot-mix asphalt plants, rock crushers, and concrete batch plants). The collocation requirements were imposed to protect NAAQS and to limit operations such the emissions from the combined portable sources do not aggregate such that the sources become one large major source subject to Tier I operating permit requirements.

Modified Permit Condition 2.23 requires that the facility not collocate with any other hot-mix asphalt facility. This requirement is protective of NAAQS and limits emissions such that Tier I operating permit requirements are not triggered.

2.23 Collocation Restriction

This facility shall not collocate with any other hot-mix asphalt facility at any site of operations.

6.11 Modified Permit Conditions 2.31 and 2.32 recommend that the facility submit a performance test protocol prior to conducting a performance test (Modified Permit Condition 2.31) and requires that the facility submit the results of all performance tests conducted (Modified Permit Condition 2.32).

7. PUBLIC COMMENT

An opportunity for public comment on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no request for a public comment period.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Masco, Inc. be issued final PTC No. P-050011 for its portable hot-mix asphalt facility. No entity requested a public comment period and the project does not involve PSD permitting requirements.

BR/sd Permit No. P-050011

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APPENDIX A

AIRS Information

Masco, Inc.

P-050011

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Masco, Inc.
Facility Location: Portable
AIRS Number: 777-00051

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	SM					SM80		U
PM_{10}	B							U
PT (Particulate)	B		B					U
VOC	B							U
THAP (Total HAPs)	B							U
			APPLICABLE SUBPART					
			I					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides)

APPENDIX B

Emissions Inventory

Masco, Inc.

P-050011

Masco, Inc. PTC No 777-00051 (Portable Hot-Mix Asphalt Plant)
Drum Mix Dryer Potential to Emit Calculations

Assumptions:

Rated Capacity: 75.6 MMBtu/hr; 350 t/hr max throughput rate; 8760 hrs operation per year

Air Pollution Control Device: Scrubber

Fuel:

Diesel[a] (# 2 Fuel Oil): 137,000 Btu/gal; 0.5 wt% sulfur (max limit)

Natural Gas[b]: 1050 Btu/scf

Fuel Oil[a] (RFO): 138,670 Btu/gal; 0.3917 wt% sulfur

Calculations

Criteria Pollutants Unrestricted [d]

Pollutant	EF			Unrestricted PTE							
	Diesel (#2)	Natural Gas	RFO	Diesel (#2)		Natural Gas		RFO		Worst-case	
	lb/ton HMA	lb/ton HMA	lb/ton HMA	lb/yr	t/yr	lb/yr	t/yr	lb/yr	t/yr	lb/hr	t/hr
NOx	0.055	0.028	0.055	168,630	84	79,716	40	168,630	84	168,630	84
CO	0.13	0.13	0.13	398,580	199	398,580	199	398,580	199	398,580	199
PM-10[e]	0.045	0.045	0.045	137,970	69	137,970	69	137,970	69	137,970	69
SO_2	0.011	0.0034	0.058	33,726	17	10,424	5	177,828	89	177,828	89
VOC	0.032	0.032	0.032	98,112	49	98,112	49	98,112	49	98,112	49

Criteria Pollutants With Throughput Limitations [d]

Hourly

Throughput Limit to meet NSPS PM grain standard (40 CFR 60.92(a)(1)): 250 t/hr — Increase for Natural Gas and RFO; 50 t/hr — Increase for Diesel (#2)

Pollutant	EF			Thpughput Limit PTE							
	Diesel (#2)	Natural Gas	RFO	Diesel (#2)[f]		Natural Gas		RFO		Worst-case	
	lb/ton HMA	lb/ton HMA	lb/ton HMA	lb/hr	t/hr	lb/hr	t/hr	lb/hr	t/hr	lb/hr	t/hr
NOx	0.055	0.028	0.055	3	0.001	7	0.003	14	0.007	14	0.007
CO	0.13	0.13	0.13	7	0.003	33	0.016	33	0.016	33	0.016
PM-10[e]	0.045	0.045	0.045	2	0.001	11	0.006	11	0.006	11	0.006
SO_2	0.011	0.0034	0.058	1	0.000	1	0.000	15	0.007	15	0.007
VOC	0.032	0.032	0.032	2	0.001	6	0.004	6	0.004	6	0.004

Yearly

Throughput Limit to avoid classification as a major: 1,431,979 t/yr (current PTC limit 1,431,979 t/yr)

Pollutant	EF			Throughput Limit PTE							
	Diesel (#2)	Natural Gas	RFO	Diesel (#2)[g]		Natural Gas		RFO		Worst-case	
	lb/ton HMA	lb/ton HMA	lb/ton HMA	lb/yr	t/yr	lb/yr	t/yr	lb/yr	t/yr	lb/hr	t/hr
NOx	0.055	0.028	0.055			37,231	19	78,759	39	78,759	39
CO	0.13	0.13	0.13			186,157	93	186,157	93	186,157	93
PM-10[e]	0.045	0.045	0.045			64,439	32	64,439	32	64,439	32
SO_2	0.011	0.0034	0.058			4,869	2	83,055	42	83,055	42
VOC	0.032	0.032	0.032			45,823	23	45,823	23	45,823	23

[a] *Heat Value from the United States Environmental Protection Agency (EPA) AP-42, Appendix A, Typical Parameters of Various Fuels, (From Air CHIEF, April 2004)*
Sulfur content from Idaho Administrative Procedures Act (IDAPA) Chapter 58.01.01.728.
[b] *EPA AP-42, Appendix A, Typical Parameters of Various Fuels, (Air CHIEF, April 2004)*
[c] *Lab Analysis of Fuel from Thermal Fluids, Nampa Id., February 2005 (Used the waste oil EF's for HMA Plants from EPA AP-42, Chapter 11.1)*
[d] *CO, NO_x, SO_2 from EPA AP-42, Table 11.1-7 (Air CHIEF, April 2004), VOC from Table 11.1-8, (Air CHIEF, April 2004)*
[e] *Total PM for a dryer with a wet scrubber, EPA AP-42, Table 11.1-3 (Air CHIEF, April 2004)*

Masco, Inc. PTC No 777-00051 (Portable Hot-Mix Asphalt Plant)
Drum Mix Dryer Potential to Emit Calculations (HAP)

Hazardous Air Pollutants [a]

Pollutant	CAS #	EF			Hourly Throughput Limit PTE						Yearly Throughput Limit PTE						IDAPA 58.01.01.585/586 - EL (lb/hr)	Compare to EL		
		Diesel (#2) lb/ton HMA	Natural Gas lb/ton HMA	RFO lb/ton HMA	Diesel (#2)[d] lb/hr	t/hr	Natural Gas lb/hr	t/hr	RFO lb/hr	t/hr	Diesel (#2)[e] lb/yr	t/yr	Natural Gas lb/yr	t/yr	RFO lb/yr	t/yr		#2	Natural Gas	RFO
Non PAH																				
Acetaldehyde	75-07-0			0.0013					2.86E-01	1.43E-04					1.86E+03	9.31E-01	3.00E-03			Exceeds
Acrolein	107-02-8			2.60E-05					5.72E-03	2.86E-06					3.72E+01	1.86E-02	1.70E-02			Below
Benzene	71-43-2	0.00039	0.00039	0.00039	1.17E-02	5.85E-06	8.58E-02	4.29E-05	8.58E-02	4.29E-05			5.58E+02	2.79E-01	5.58E+02	2.79E-01	8.00E-04	Exceeds	Exceeds	Exceeds
Ethylbenzene	100-41-4	0.00024	0.00024	0.00024	5.28E-02	2.64E-05	5.28E-02	2.64E-05	5.28E-02	2.64E-05			3.44E+02	1.72E-01	3.44E+02	1.72E-01	2.90E+01	Below	Below	Below
Formaldehyde	50-00-0	0.0031	0.0031	0.0031	9.30E-02	4.65E-05	6.82E-01	3.41E-04	6.82E-01	3.41E-04			4.44E+03	2.22E+00	4.44E+03	2.22E+00	5.10E-04	Exceeds	Exceeds	Exceeds
Hexane	110-54-3	0.00092	0.00092	0.00092	2.76E-02	1.38E-05	2.02E-01	1.01E-04	2.02E-01	1.01E-04			1.32E+03	6.59E-01	1.32E+03	6.59E-01	1.20E+01	Below	Below	Below
Isooctane (2,2,4-trimethylpentane)	540-84-1	4.00E-05	4.00E-05	4.00E-05	1.20E-03	6.00E-07	8.80E-03	4.40E-06	8.80E-03	4.40E-06			5.73E+01	2.86E-02	5.73E+01	2.86E-02	NA			
Methyl Ethyle Ketone	78-93-3			2.00E-05					4.40E-03	2.20E-06					2.86E+01	1.43E-02	3.93E+01			Below
Propionaldehyde	123-38-6			0.00013					2.86E-02	1.43E-05					1.86E+02	9.31E-02	2.87E-02			Below
Quinone	106-51-4			0.00016					3.52E-02	1.76E-05					2.29E+02	1.15E-01	2.70E-02			Exceeds
Methyl chloroform	71-55-6	4.80E-05	4.80E-05	4.80E-05	1.44E-03	7.20E-07	1.06E-02	5.28E-06	1.06E-02	5.28E-06			6.87E+01	3.44E-02	6.87E+01	3.44E-02	1.27E+02	Below	Below	Below
Toluene	108-88-3	0.0029	0.00015	0.0029	8.70E-02	4.35E-05	3.30E-02	1.65E-05	6.38E-01	3.19E-04			2.15E+02	1.07E-01	4.15E+03	2.08E+00	2.50E+01	Below	Below	Below
Xylene	1330-20-7	0.0002	0.0002	0.0002	6.00E-03	3.00E-06	4.40E-02	2.20E-05	4.40E-02	2.20E-05			2.86E+02	1.43E-01	2.86E+02	1.43E-01	2.90E+01	Below	Below	Below
PAH																				
2-Methylnaphthalene	91-57-6	0.00017	7.40E-05	0.00017	5.10E-03	2.55E-06	1.63E-02	8.14E-06	3.74E-02	1.87E-05			1.06E+02	5.30E-02	2.43E+02	1.22E-01				
Acenaphthene	83-32-9	1.40E-06	1.40E-06	1.40E-06	4.20E-05	2.10E-08	3.08E-04	1.54E-07	3.08E-04	1.54E-07			2.00E+00	1.00E-03	2.00E+00	1.00E-03				
Acenaphthylene	208-96-8	2.20E-06	8.80E-06	2.20E-05	6.60E-04	3.30E-07	1.89E-03	9.46E-07	4.84E-03	2.42E-06			1.23E+01	6.16E-03	3.15E+01	1.58E-02				
Anthracene	120-12-7	3.10E-06	2.20E-07	3.10E-06	9.30E-05	4.65E-08	4.84E-05	2.42E-08	6.82E-04	3.41E-07			3.15E-01	1.58E-04	4.44E+00	2.22E-03				
Benzo(a)anthracene	56-55-3	2.10E-07	2.10E-07	2.10E-07	6.30E-06	3.15E-09	4.62E-05	2.31E-08	4.62E-05	2.31E-08			3.01E-01	1.50E-04	3.01E-01	1.50E-04				
Benzo(a)pyrene	50-32-8	9.80E-08	9.80E-08	9.80E-08	2.94E-07	1.47E-10	2.16E-06	1.08E-09	2.16E-06	1.08E-09			1.40E-02	7.02E-06	1.40E-02	7.02E-06				
Benzo(b)fluoranthene	205-99-2	1.00E-07	1.00E-07	1.00E-07	3.00E-06	1.50E-09	2.20E-05	1.10E-08	2.20E-05	1.10E-08			1.43E-01	7.16E-05	1.43E-01	7.16E-05				
Benzo(e)pyrene	192-97-2	1.10E-07	1.10E-07	1.10E-07	3.30E-06	1.65E-09	2.42E-05	1.21E-08	2.42E-05	1.21E-08			1.58E-01	7.88E-05	1.58E-01	7.88E-05				
Benzo(g,h,i)perylene	191-24-2	4.00E-08	4.00E-08	4.00E-08	1.20E-06	6.00E-10	8.80E-06	4.40E-09	8.80E-06	4.40E-09			5.73E-02	2.86E-05	5.73E-02	2.86E-05				
Benzo(k)fluoranthene	207-08-9	4.10E-08	4.10E-08	4.10E-08	1.23E-06	6.15E-10	9.02E-06	4.51E-09	9.02E-06	4.51E-09			5.87E-02	2.94E-05	5.87E-02	2.94E-05				
Chrysene	218-01-9	1.80E-07	1.80E-07	1.80E-07	5.40E-06	2.70E-09	3.96E-05	1.98E-08	3.96E-05	1.98E-08			2.58E-01	1.29E-04	2.58E-01	1.29E-04				
Fluoranthene	206-44-0	6.10E-07	6.10E-07	6.10E-07	1.83E-05	9.15E-09	1.34E-04	6.71E-08	1.34E-04	6.71E-08			8.74E-01	4.37E-04	8.74E-01	4.37E-04				
Fluorene	86-73-7	1.10E-05	3.80E-06	1.10E-05	3.30E-04	1.65E-07	8.36E-04	4.18E-07	2.42E-03	1.21E-06			5.44E+00	2.72E-03	1.58E+01	7.88E-03				
Indeno(1,2,3-cd)pyrene	193-39-5	7.00E-09	7.00E-09	7.00E-09	2.10E-07	1.05E-10	1.54E-06	7.70E-10	1.54E-06	7.70E-10			1.00E-02	5.01E-06	1.00E-02	5.01E-06				
Naphthalene	91-20-3	0.00065	9.00E-05	0.00065	1.95E-02	9.75E-06	1.98E-02	9.90E-06	1.43E-01	7.15E-05			1.29E+02	6.44E-02	9.31E+02	4.65E-01				
Perylene	198-55-0	8.80E-09	8.80E-09	8.80E-09	2.64E-07	1.32E-10	1.94E-06	9.68E-10	1.94E-06	9.68E-10			1.26E-02	6.30E-06	1.26E-02	6.30E-06				
Phenanthrene	85-01-8	2.30E-05	7.60E-06	2.30E-05	6.90E-04	3.45E-07	1.67E-03	8.36E-07	5.06E-03	2.53E-06			1.09E+01	5.44E-03	3.29E+01	1.65E-02				
Pyrene	129-00-0	3.00E-06	5.40E-07	3.00E-06	9.00E-05	4.50E-08	1.19E-04	5.94E-08	6.60E-04	3.30E-07			7.73E-01	3.87E-04	4.30E+00	2.15E-03				
Total for Comparison[c]					1.97E-05		1.45E-04		1.45E-04								9.10E-05	Below	Exceeds	Exceeds
Dioxins																				
Total HxCDD				5.40E-12					1.19E-09	5.94E-13					7.73E-06	3.87E-09				
1,2,3,4,6,7,8-HpCDD	35822-46-9			3.40E-11					7.48E-09	3.74E-12					4.87E-05	2.43E-08				
Total HpCDD				7.10E-11					1.56E-08	7.81E-12					1.02E-04	5.08E-08				
Octa CDD	3268-87-9			2.70E-09					5.94E-07	2.97E-10					3.87E-03	1.93E-06				
Total PCDD				2.80E-09					6.16E-07	3.08E-10					4.01E-03	2.00E-06				
Furans																				
Total TCDF				3.30E-11					7.26E-09	3.63E-12					4.73E-05	2.36E-08				
Total PeCDF				7.40E-11					1.63E-08	8.14E-12					1.06E-04	5.30E-08				
1,2,3,4,7,8-HxCDF				5.40E-12					1.19E-09	5.94E-13					7.73E-06	3.87E-09				
2,3,4,6,7,8-HxCDF				1.60E-12					3.52E-10	1.76E-13					2.29E-06	1.15E-09				
Total HxCDF				8.10E-12					1.78E-09	8.91E-13					1.16E-05	5.80E-09				
1,2,3,4,6,7,8-HpCDF				1.10E-11					2.42E-09	1.21E-12					1.58E-05	7.88E-09				
Total HpCDF				3.80E-11					8.36E-09	4.18E-12					5.44E-05	2.72E-08				
Total PCDF				1.50E-10					3.30E-08	1.65E-11					2.15E-04	1.07E-07				
Total PCDD/PCDF				3.00E-09					6.60E-07	3.30E-10					4.30E-03	2.15E-06				
Total Dioxins and Furans									1.96E-06								4.80E-03			Below
Total					3.07E-01	1.54E-04	1.16E+00	5.80E-04	2.28E+00	1.14E-03	0.00	0.00	7554.37	3.78	14833.82	7.42				

Masco, Inc. PTC No 777-00051 (Portable Hot-Mix Asphalt Plant)

Drum Mix Dryer Potential to Emit Calculations (HAP)

Metal Air Pollutants[a]

Pollutant		EF			Hourly Throughput Limit PTE						Yearly Throughput Limit PTE						IDAPA	Compare to EL		
		Diesel (#2)	Natural Gas	RFO	Diesel (#2)		Natural Gas		RFO		Diesel (#2)		Natural Gas		RFO		58.01.01.585/586 - EL			
		lb/ton HMA	lb/ton HMA	lb/ton HMA	lb/hr	t/hr	lb/hr	t/hr	lb/hr	t/hr	lb/yr	t/yr	lb/yr	t/yr	lb/yr	t/yr	(lb/hr)	#2	Natural Gas	RFO
Antimony	7440-36-0	1.80E-07	1.80E-07	1.80E-07	5.40E-06	2.70E-09	3.96E-05	1.98E-08					2.58E-01	1.29E-04			0.033	Below	Below	
Arsenic	7440-38-2	5.60E-07	5.60E-07	5.60E-07	1.68E-05	8.40E-09	1.23E-04	6.16E-08	1.23E-04	6.16E-08			8.02E-01	4.01E-04	8.02E-01	4.01E-04	1.50E-06	Exceeds	Exceeds	Exceeds
Barium	7440-39-3	5.80E-06	5.80E-06	5.80E-06	1.74E-04	8.70E-08	1.26E-03	6.38E-07	1.26E-03	6.38E-07			8.31E+00	4.15E-03	8.31E+00	4.15E-03	0.33	Below	Below	Below
Beryllium	440-41-7	0	0	0													2.80E-05			
Cadmium	7440-43-9	4.10E-07	4.10E-07	4.10E-07	1.23E-05	6.15E-09	9.02E-05	4.51E-08	9.02E-05	4.51E-08			5.87E-01	2.94E-04	5.87E-01	2.94E-04	3.70E-06	Exceeds	Exceeds	Exceeds
Chromium	7440-47-3	5.50E-06	5.50E-06	5.50E-06	1.65E-04	8.25E-08	1.21E-03	6.05E-07	1.21E-03	6.05E-07			7.88E+00	3.94E-03	7.88E+00	3.94E-03	5.60E-07	Exceeds	Exceeds	Exceeds
Cobalt	7440-48-4	2.60E-08	2.60E-08	2.60E-08	7.80E-07	3.90E-10	5.72E-06	2.86E-09	5.72E-06	2.86E-09			3.72E-02	1.86E-05	3.72E-02	1.86E-05	0.0033	Below	Below	Below
Copper	7440-50-8	3.10E-06	3.10E-06	3.10E-06	9.30E-05	4.65E-08	6.82E-04	3.41E-07	6.82E-04	3.41E-07			4.44E+00	2.22E-03	4.44E+00	2.22E-03	0.013	Below	Below	Below
Hexavalent chromium	7440-47-3	4.50E-07	4.50E-07	4.50E-07	1.35E-05	6.75E-09	9.90E-05	4.95E-08					6.44E-01	3.22E-04			5.60E-07	Exceeds	Exceeds	
Lead		1.50E-05	6.20E-07	1.50E-05	4.50E-04	2.25E-07	1.36E-04	6.82E-08	3.30E-03	1.65E-06			8.88E-01	4.44E-04	2.15E+01	1.07E-02				
Manganese	7439-96-5	7.70E-06	7.70E-06	7.70E-06	2.31E-04	1.16E-07	1.69E-03	8.47E-07	1.69E-03	8.47E-07			1.10E+01	5.51E-03	1.10E+01	5.51E-03	0.067	Below	Below	Below
Mercury	7439-97-6	2.80E-06	2.40E-07	2.60E-06	7.80E-05	3.90E-08	5.28E-05	2.64E-08					3.44E-01	1.72E-04			0.001	Below	Below	
Nickel	7440-02-0	6.30E-05	6.30E-05	6.30E-05	1.89E-03	9.45E-07	1.39E-02	6.93E-06	1.39E-02	6.93E-06			9.02E+01	4.51E-02	9.02E+01	4.51E-02	2.70E-05	Exceeds	Exceeds	Exceeds
Phosphorus	7723-14-0	2.80E-05	2.80E-05	2.80E-05	8.40E-04	4.20E-07	6.16E-03	3.08E-06	6.16E-03	3.08E-06			4.01E+01	2.00E-02	4.01E+01	2.00E-02	0.007	Below	Below	Below
Silver	7440-22-4	4.80E-07	4.80E-07	4.80E-07	1.44E-05	7.20E-09	1.06E-04	5.28E-08					6.87E-01	3.44E-04			0.007	Below	Below	
Selenium	7782-49-2	3.50E-07	3.50E-07	3.50E-07	1.05E-05	5.25E-09	7.70E-05	3.85E-08	7.70E-05	3.85E-08			5.01E-01	2.51E-04	5.01E-01	2.51E-04	0.013	Below	Below	Below
Thallium	7440-28-0	4.10E-09	4.10E-09	4.10E-09	1.23E-07	6.15E-11	9.02E-07	4.51E-10	9.02E-07	4.51E-10			5.87E-03	2.94E-06	5.87E-03	2.94E-06	0.007	Below	Below	Below
Zinc	7440-66-6	6.10E-05	6.10E-05	6.10E-05	1.83E-03	9.15E-07	1.34E-02	6.71E-06	1.34E-02	6.71E-06			8.74E+01	4.37E-02	8.74E+01	4.37E-02	0.667	Below	Below	Below
Total					5.82E-03	2.91E-06	3.90E-02	1.95E-05	4.19E-02	2.09E-05	0.00	0.00	254.06	0.13	272.72	0.14				

[a] EPA AP-42, Table 11.1-10, (Air CHIEF, April 2004)

[b] EPA AP-42, Table 11.1-12, (Air CHIEF, April 2004)

[c] As listed in IDAPA 58.01.01.586

[d] 50 ton per hr increase for Diesel (#2)

[e] No annual increase for Diesel (#2) current PTC limit 1,431,979 - no annual increase

APPENDIX C

Modeling Technical Memorandum

Masco, Inc.

P-050011

MEMORANDUM

DATE: May 3, 2005

TO: Bill Rogers, Air Quality Division

THROUGH: Kevin Schilling, Stationary Source Modeling Coordinator, Air Quality Division KS

FROM: Dustin Holloway, Modeling Analyst, Air Quality Division DH

PROJECT NUMBER: P-050011

SUBJECT: Modeling Review for the MASCO, Inc. Facility in Boise

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1. SUMMARY

MASCO, Inc. (MASCO) submitted an air quality dispersion modeling analysis in support of a permit to construct (PTC) application for an increase in PM_{10} emissions limit from the asphalt plant stack. The modeling analysis was conducted by CH2M HILL.

2. DEQ REVIEW

DEQ conducted an abbreviated review of the modeling analysis. The applicant used the ISCST3 dispersion model to estimate the impacts from the asphalt plant stack. The model input parameters were reviewed and determined to be appropriate for this analysis. The dispersion modeling results were reviewed and compared to the applicable ambient air quality standards. The results, when added to the background concentration for the area are within all applicable standards. The estimated PM_{10} 24-hour concentration is 90% of the standard. However, the applicant used a very conservative background concentration. The following table summarizes the results of the modeling analysis.

Table 1.1 DISPERSION MODELING RESULTS

Pollutant	Averaging Period	Emission Rate (lb/hr)	Concentration (µg/m3)	Background Concentration (µg/m3)	Total (µg/m3)	NAAQS (µg/m3)	Percent of NAAQS
PM_{10}	Annual	7.36	1.0	33.7	34.7	50	69.5%
	24-hour	11.25	12.1	123	135.1	150	90.0%
NO_x	Annual	8.99	1.3	40	41.3	100	41.3%
SO_2	Annual	9.48	1.3	10	11.3	80	14.2%
	3-hour	14.50	50.1	120	170.1	1,300	13.1%
	24-hour	14.50	15.5	40	55.5	365	15.2%
CO	1-hour	32.50	128.1	12,200	12,328.1	40,000	30.8%
	8-hour	32.50	69.8	6,800	6,869.8	10,000	68.7%

Based on the results of the analyses, DEQ has determined that the modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards.